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Unpacking the international assessment data of literate population: The challenge and opportunity for global monitoring on adult literacy*

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ABSTRACT

As an inter-governmental commitment toward education for all in Sustainable Development Goals (SDGs) context, Education 2030 Framework for Action has advocated to trace progress of adult literacy in within the lifelong learning framework. A purpose of this study is to scrutinize the international assessment data as a global indicator on adult literacy. For this, the author uses a multi data source from three influential international organizations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Organisation for Economic Co-operation and Development (OECD), and the World Bank. The international databases are analyzed by a mixed-method approach from literature review to non-parametric analysis. Using the secondary analysis of the data on global literacy assessment projects, the findings of this study critically demonstrate that the global literacy assessments have been exclusively occupied in developed countries. Also, the non-parametric methods show significant differences in national policy on adult learning and education. Key results of this study suggest that adult literacy skills need to be linked with lifelong learning matrix as well as more contextual measures are necessary for scaling up literacy learning with an improved monitoring tool.

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I. Introduction

Literacy assessment and monitoring has been growing as policymakers and other stakeholders have increasingly come to understand the importance of basic literacy since the Dakar Framework for Action, Education for All (EFA) in 2000. However, a benchmarking function of international assessment inevitably leads to rank countries on their performance in literacy assessment. For the international organizations monitoring EFA and the Millennium Development Goals (MDGs), the evidence-based regulation tools have been widely used to describe ranking, performance assessments, and benchmarks (Steiner-Khamsi & Waldow, 2012). Critical perspectives on international education assessments have argued that a new global agenda should promote education for sustainment development goals counting on wider views for learning beyond the test-driven educational practices (Sinnes & Eriksen, 2016; UIS, 2016). Compared to the MDGs to be achieved by 2015, the Sustainable Development Goals (SDGs) are set to assess learning skills from more comprehensive approaches with 17 specific goals (UNESCO, 2015; UNESCO, 2016). In particular, the broader scope of the SDG has articulated education as a stand-alone goal to embrace lifelong learning opportunities for all and to monitor literacy from a lifelong learning perspective (UNESCO, 2016). The global consensus has been recently reached on seeing literacy as a dynamic continuum acquired after formal schooling (Benavot, 2015; Hanemann, 2015; OECD, 2013; UNESCO, 2015). A key idea of the Education 2030 Frame for Action expands a scope of global education agendas from the successful completion of basic education to adult learning and training. Beyond the traditional ways to see adult literacy as a binary condition, “adults are literate or illiterate”, the current international literacy assessments scale literacy as a continuum to be assessed in the diversity of tasks that adults encounter at work, home, school, and in their communities. Current formulations define literacy as a multidimensional skill to be learned and measured (OECD, 2013; UIL, 2012; World Bank, 2014). In the post-2015 era, measurable indicators have been proposed for literacy progress, “By 2030, all youth and at least x% of adults, both men and women achieve literacy and numeracy” (UNESCO, 2015).

A starting point of this article is to have a critical look on the international literacy assessment data and to find a gap for monitoring the global mandate for adult illiteracy. It aims to explore the pros and cons of using the existing data as a feasible source to monitor the target for adult literacy. For this, two specific global literacy assessment projects deserve analytical scrutiny here. The official data of adult literacy in the SDGs has described Programme for the International Assessment of Adult Competencies (PIAAC) and the Skills Towards Employability and Productivity program (STEP) (UIS,

2016). The following section analyzes these global literacy datasets and identifies challenges in regional coverage of the existing assessment data through an open source map. It shows spatial distribution of the literacy assessment data availability. This global map can contribute to find out a deficiency in the internationally comparable indicators on the adult literacy.

The other purpose of this article is to link the institutional dimension of adult learning and education with the literate population. As discussed in the context of SDGs, adult literacy has to be assessed as a learning outcome within the lifelong learning framework (UNESCO, 2016; UIL, 2015). Given that the PIAAC survey is limited in scope of adult learning and education with a job-related bias instrument (Rubenson, 2018; Kim, 2018), a more structural parameter needs to be considered. For this, I explore an empirical association of national policy in adult learning and education with literacy skills by conducting two non-parametric analyses, Kruskal-Wallis Test and Kernel regression modeling. These analytical strategies allow to examine international differences in literate population by adult literacy and education policy measured by the third Global Report on Adult Learning and Education (UIL, 2016). The analyses attempt to link micro and macro dimensions of adult literacy and learning and to provide scholarly legitimation for what should be further unpacked to assess progress of the SDG 4.6 for post-2015 era. The final section delivers a series of implications for international literacy research and several concluding remarks.

II. Adult Literacy in International Education and Development Agendas

Literacy has been understood as a fundamental human right to enhance capabilities with wide-ranging benefits including critical thinking, children's education, poverty reduction and active citizenship (UNESCO, 2006, 2008, 2013a). Literacy can play a pivotal role in pursuit development at personal, family and community levels, as well as at the macro-level of countries, regions and the world (Farah, 2006; UNESCO, 2006, 2008, 2013a). By being literate, people can meet their most vital needs and participate in social, cultural, political and economic activities. As the United Nations Literacy Decade (2003~2012) resolution states, "Literacy is at the heart of basic education for all and creating literate environments and societies is essential for achieving the goals of eradicating poverty, reducing child mortality, curbing population growth, achieving gender equality, and ensuring sustainable development, peace and democracy (UNESCO, 2013)."

Literacy and basic skills has been placed in the heart of global monitoring on education. By integrating various conceptual aspects of literacy, the 2006 Educational For All Global Monitoring Report (GMR) entitled 'Literacy for life' defined literacy as an autonomous set of skills (reading, writing and oral skills, numeracy skills, and ICT skills), applied practiced and situated, a learning process, and text. In particular, adult literacy has been conceptualized as a continuum of skills enabling individuals to achieve their goals in work and life and to participate fully in society as substantially since the Sixth International Conference on Adult Education (CONFINTEA VI) adopting Belém Framework for Action (UIL, 2010). The CONFINTEA VI acknowledged literacy as an active process of learning in terms of social awareness and critical reflection, which can empower human and create social change (Freire & Macedo, 2013; UIL, 2010). Literacy is not just understood as an individual phenomenon, but is seen as a contextual and societal one.

Literacy is part of further learning opportunities, whether in formal settings or in non-formal learning programs. The benefits are accruing not only from formal education, but also from non-formal education, particularly adult literacy education. For example, taking adult literacy programs outside formal school setting improves women's empowerment, in terms of self-esteem, economic independence and social inclusion (UIL, 2013). Many women who have ever received adult literacy education have spoken of feeling a sense of personal empowerment. Literate parents tend to support their children in practical ways, such as meeting with teachers and discussing progress with their children (Farah, 2006).

Recent perspectives on literacy emphasize vibrant socio-cultural contexts. Against a traditional view which assumes a divide between literate and illiterate, researchers propose different levels and uses of literacy according to context (UNESCO, 2006a). Rather than seeing literacy as a skill which people have or not, multiple literacies exist. As a result, cross-national literacy assessments recognize that demand in the 21st century has shifted from routine cognitive skills to high-level interpersonal skills with a focus on literacy as an evolving skill to be learned at different proficiency levels through lifespan. In this sense, a recent publication on the sustainable development data digest proposed using two international assessment data as a feasible indicator of the target on adult literacy (UNESCO, 2016). The following section starts analyzing key features of these datasets, PIAAC and STEP and then identifies a policy indicator of adult learning and education reported by the third edition of the Global Report on Adult Learning Education (GRALE III).

A. Programme for the International Assessment of Adult Competencies (PIAAC)

OECD has conducted the Programme for the International Assessment of Adult Competencies (PIAAC) which informs of how adult education and training can enhance the key skills necessary for the 21st century. A main purpose of PIAAC is to assess and to compare the basic skills and the broad range of competencies of adults around the world (OECD, 2016). From a life-span perspective, the PIAAC provides the information of individuals' educational background, workplace experiences and skills, occupational attainment, use of information and communication technology, and skills in the areas of literacy, numeracy, and problem solving in technology-rich environments(OECD, 2013).

In PIAAC study, key skills are defined as "the ability to successfully meet complex demands in a particular context through the mobilization of psychosocial prerequisites, including both cognitive and non-cognitive aspects" (OECD, 2013). As the more holistic term, it refers not only to a range of cognitive and non-cognitive skills, but also to the notion of "orchestration" seen as the ability to use these constituent elements in a meaningful arranged way. Therefore, key skills are defined in various areas such as communication (speaking, listening, reading, and writing), mathematical, problem solving, intrapersonal (motivation, metacognition), interpersonal (teamwork, leadership), and technology. On the basis of such an extensive definition of key skills, PIAAC embodies not only literacy and numeracy but also the problem-solving domain to emphasize skills used in technology-rich environments.

Compared to previous international adult assessments- the International Adult Literacy Survey (IALS) and the Adult Literacy and Life Skills Survey (ALL), PIAAC develops the content frameworks of the cognitive skill assessments and their methodologies. All participants are asked to take the cognitive assessments during the interview process. This exercise includes a set of test questions organized into three domains: literacy, numeracy, and problem solving. Originally, all assessments in these three domains were administered on computers but literacy and numeracy can also be carried out on paper depending on the participants' preference and their IT literacy skills.

Distinguished from previous adult assessments, PIAAC measures a skill to access, to manage, to integrate and to construct information using the technologies (OECD, 2013). Acknowledging the relevance of the ICT dimension in the assessment of literacy, it assesses a key skill within three domains: literacy, numeracy, and problem solving (OECD, 2013). First, PIAAC Literacy Assessment measures the abilities to understand, to evaluate, to use and to engage with written texts in order to participate in society.

Second, PIAAC Numeracy Assessment examines basic computational or mathematical knowledge related to numerate behavior which involves managing situations or solving problem in a real context. Last, PIAAC problem solving assessment measures skills needed to address the problems related to the experience and knowledge necessary to use digital technologies which acquire information from the Internet, using email to communicate with others, using digital tools to process data where appropriate and so on.

B. The Skills Towards Employability and Productivity program (STEP)

The Skills Towards Employability and Productivity program (STEP) provides a set of core surveys and comparable country databases on skills for country-level policy analysis. Since 2012, STEP has conducted assessment of job-relevant skills in developing countries with two survey instruments that collect information on the supply and demand for skills. A main objective of STEP is to measure key skills as human capital stocks from supply-side. STEP attempts to inform policy and strategies on skills development. Therefore, it targets all adults, who work or not to measure labor force potential as well as skills used.

A key feature of the STEP is to conceptualize skills within a multi-dimensional framework beyond educational attainment to capture human capital more comprehensively. Three broad concept of skills are importantly defined. Cognitive skills are conceptualized as the "ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning, and to overcome obstacles." Literacy, numeracy, and the ability to solve abstract problems are all cognitive skills. Socio-emotional skills, as non-cognitive skills or soft skills, are defined in multiple domains such as social, emotional, personality, behavioral, and attitudinal. Job-relevant skills are task-related such as computer use and build on a combination of cognitive and socio-emotional skills. The STEP conception of literacy is based on the same concept used in PIAAC Literacy Framework, where it has been defined as "understanding, evaluating, using and engaging with written texts to participate in society, to achieve one's goals, and to develop one's knowledge and potential."

The STEP household survey collects background information on a participating household as well as detailed information on a randomly selected individual within the household (ages 15 to 64). The household survey consists of three modules to measure different types of skills: (1) an assessment of reading literacy; (2) a battery of self-reported information on personality traits and behavior and (3) a series of questions on

task-specific skills that the respondent possesses or uses while working. On the employer's side, STEP measures both work requirements and reported skill difficulties as indicators of the demand for skills, potential skill shortages, and work performance for sampled sectors of activity.

The characteristics of the target population for STEP were a subset of the adult population, ages 16-65, included in the total population of PIAAC national samples. Like PIAAC, respondents are assessed by an interviewer face-to-face at home or at a place chosen by them. The systems of test administration, scoring, and the evaluation of scoring accuracies are also comparable to those used in the paper-based PIAAC assessment. The analysis, methods, and procedures for STEP were the same psychometric principles as PIAACs (see Table 1). To ensure comparability of the literacy scale in STEP with PIAAC, several steps were taken from the PIAAC literacy assessment.

<Table 1> International literacy assessment survey data

	PIAAC(OECD)	**STEP(World Bank)**
Years/Countries	2008~2015/33 countries	2011~2013/ 9 countries
Main objectives	- To compare the basic skills and the broad range of competencies of adults around the world - To inform of how adult education and training can nurture the key skills necessary for the 21st century	- To measure key skills as human capital stocks from supply side - To inform policy and strategies on skills development for developing countries
Views on literacy as a key skill	- The ability to successfully meet complex demands in a particular context through the mobilization of psychosocial prerequisites, including both cognitive and non-cognitive aspects	- Human capital stocks - The ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning, and to overcome obstacles.
Unit of analysis	Country, Individual adults (15~65 years)	Country, Employers, Individual adults (15~65 years)
Measurement tools	- Background questionnaire - Direction measurements of a proficiency of key skills using a computer-based test or a paper-based test	- Background questionnaire - Direction measurements of a proficiency of key skills via a paper-based test

Analytic techniques	- A household survey (a multi-stage sampling design) - Imputing an indicator of skill proficiency to provide plausible values (IRT)	- A household survey (random sampling) - Imputing an indicator of skill proficiency to provide plausible values (IRT)

C. Global Report on Adult Learning and Education (GRALE)

Well-documented studies has researched adult learning and education in the framework of public policy (Desjardins & Rubenson, 2013; Desjardins, Melo, & Lee, 2016; Rubenson & Desjardins, 2009; Windisch, 2016). Beyond human capital theory under neoliberal globalization, sociological perspectives on adult learning and education have questioned equity issues of participation in the societal level (Cincinnato et al., 2016; Regmi, 2015; Windisch, 2016). For adults with low literacy skills, public interventions have been provided by formative assessment, blended learning and workplace learning and family literacy in order to them to engage in learning (Windisch, 2016). These scholarly discussions commonly suggest that adult literacy skills interweaves with institutional features pertaining adult learning and education system and welfare regimes.

From such a macro-level perspective, it is worthwhile to refer to the Global Report on Adult Learning Education published by UNESCO Institute for Lifelong Learning. It has aimed to monitor the key areas of adult education at the global level since 2009. As an advocacy tool to promote the importance of adult education over the world, it has contributed to providing the evidence on progress in adult learning and education for policymakers, practitioners, and researchers by sharing national reports from UNESCO Member States. In particular, the second edition of GRALE entitled ‘Rethinking Literacy, attempted to bring 141 countries up to date on adult literacy via ground-breaking analyses on new concepts, refined methods to measure literacy and effective policies. It critically pointed out that literacy rates were not measured by proficiency test but approximately estimated by indirect ways such as population census or number of years of formal schooling (UIL, 2013).

The latest, third edition of GRALE made it feasible to examine national progress in the five areas of action (policy, governance, financing, participation, and quality) outlined in the Belém Framework for Action (BFA) via a survey tool self-reported by 139 UNESCO Member States (UIL, 2016). In addition to assessing global progress in the BFA, the GRALE III survey questionnaire addressed the impact of adult learning and education (ALE) on health and well-being, employment and the labor market, and social, civic and community life from more holistic outlooks on education and lifelong learning within the 2030 Agenda for Sustainable Development. Acknowledging the importance of monitoring the progress of adult learning and education at the country level, the

upcoming fourth edition will focus on collecting the information on measurement instruments and indicators of adult learning and education around world (see Table 2).

<Table 2> Key features of GRALE

	Time-frame	Number of countries	Key information
GRALE1	2009	154	Global trends and future challenges in adult learning and education, regional synthesis reports
GRALE2	2013	141	Global monitoring on the conceptual and operational defines of adult literacy and progress of adult and learning system
GRALE3	2016	139	Global monitoring on the benefits of adult learning and education in three key policy domains (health and well-being, employment and the labor market, and social, civic and community life) and the position of adult learning and education within the SDG 4.
GRALE4	2019	NA	Global monitoring on participation in adult learning and education and methodological issues in the field of adult learning and education research

Sources: UIL (http://uil.unesco.org/adult-education/global-report)

Ⅲ. Linking Adult Learning and Education Policy into Adult Literacy Rate

Results of meta-data analysis on literacy assessment note that literacy rate has been largely estimated in two ways, self-reporting and literacy tests about whether individuals can read or not. From the latest UNESCO Institute for Statistics literacy database, 125 countries (approximately 55%) have been assessed by self-reporting whereas only 22 countries (approximately 11%) have been directly monitored by various sets of literacy tests (UIS, 2015). Among the target countries with a literacy rate below 95% in the 1995~2004 period, few countries (23%) had obtained the EFA literacy goal, “50% improvement in levels of adult literacy by 2015,” and still most of the countries (58%)

were struggling, and continue to struggle to reduce illiteracy rates (UNESCO, 2015). The 2015 GMR ever suggested that poor countries were more likely to be far from attaining the literacy goal, and they need more reliable and comparable data which assesses literacy skills on a scale not as a self-reported binary measure (literate or not literate).

In this context, large-scale assessment data has been considered as a feasible source to assess adult literacy skill. In order to see how the international literacy assessment can well cover to monitor the SDG literacy goal, an initial approach is to put the map below from UNESCO Institute for Statistics. Geographic Information System (GIS) provides an easy understanding of the analytic results in a visual form, so this study visually explores information of the literacy assessments.

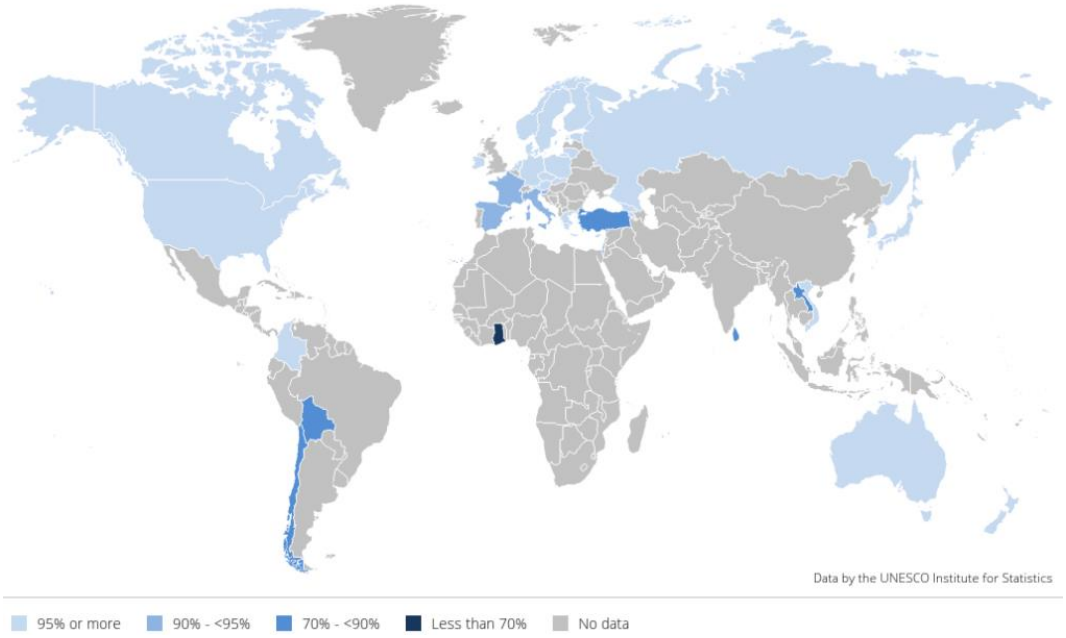

Figure 1. Literate population estimated by PIAAC and STEP

Data visualization through GIS displays that a new measurement on literacy as a continuous skill is only available for few countries. On average, 93% of adult population achieve minimum proficiency level directly measured by the cross-national literacy assessment data. However, it does not take account of the countries with a low literacy rate, but merely comes from 39 countries. The result of this analysis cautions that the high achievement of adult literacy skills might be overestimated by selection bias. Much wider set of comparable data is necessary to monitor adult literacy skills.

Among the 39 countries in the cross-national literacy assessment data available for

the SDG indicator on adult literacy, I find a significant difference in national policy related to adult learning and education. For this, I conduct two analytical strategies, the Kruskal–Wallis test and Kernel regression modeling. Based on the recent monitoring survey data released by UNESCO Institute for Lifelong Learning (UIL), I measure a national indicator on adult learning and education policy prioritizing literacy and examined a variation in the average percent of adult literate population by the national policy using the Kruskal–Wallis test. As a non-parametric method, it is equivalent of the one-way analysis of variance (ANOVA) but free from a rigorous assumption on a normal distribution of the residuals. A methodological rationale behind using the non-parametric approach is that I cannot make the stringent assumptions an identically shaped and scaled distribution for the global literacy dataset in this study (Sprent & Smeeton, 2016).

The third edition of Global Report on Adult Learning and Education (GRALE III) monitoring survey data provided a measure of national progress in the five dimensions of Belém Framework for Action such as policy, governance, financing, participation, and quality. As an indicator of national policy, a binary response, from a question, "Are literacy and basic skills a top priority in ALE programme in your country?" represented the countries with a strong focus on foundation skills. Using this measure, I conduct the Kruskal–Wallis test for 39 countries and find a significantly lower percent of adult literate population (3.42%) among the countries with the priority on the literacy and basic skills. The table below summarizes a difference in the average percentage of adult population between two specific groups. First group refers to those reporting their policy priority on literacy and basic skills whereas second group indicates its counterpart.

<Table 3> Literate population by national priority on literacy

Priority on literacy and basic skills	Average of literate population (%)	Kruskal-Wallis
1. Yes	93.54	Chi-squared = 6.8182, df = 1, p-value = 0.009***
2. No	96.53	

An initial interpretation of the results above might build a negative relationship between adult literate population and national focus on adult literacy. Does it mean that the national policy prioritizing adult literacy might result in a low number of literate adult population? To answer this question, it needs to assure that the national policy with a strong focus on adult literacy is clearly antecedent to the outcome measure of literate population. The causal impacts of the educational policies should be evaluated by the rigorous assumption on time lag between antecedent and consequence (Murnane & Willett, 2011). However, this study cannot determine precedence relationship between two measures so merely implies that some countries might still challenge in a low

percentage of literate population in spite of a national effort to emphasize literacy in adult learning and education programmes. At the same time, the other countries with a high percentage of literate population might have a different key agenda in national policy related to adult learning and education.

From a broader perspective of national policy, I further examine the association of policy progress with the literate population. For this, I use an indicator of national progress on adult learning and education policy from the GRALE survey data and conduct the Kruskal–Wallis test to see whether the adult literate population might vary by the level of national progress on adult learning policy. A result of this analysis notes differences among the countries with the international literacy assessment data. The table 3 below describes considerable gaps in the percentage of literate population by the level of policy progress and suggests the policy regression might prevent countries from achieving a certain percentage of literate population. It acknowledges an importance of national policy and strategies to improve adult literacy in complicated layers of different contexts of a lifelong continuum.

<Table 4> Literate population by national progress on ALE policy

National progress on ALE policy	Mean of literate population (%)	Kruskal-Wallis
1. Significant progress	95.70	Chi-squared =4.88, df = 2, p-value = 0.086
2. At the same level	96.23	
3. Regress	50.43	

Based on the preliminary analyses above, I conduct a non-parametric regression (Kernel regression model) to identify the association of the national indicators of adult learning and education with adult literacy rates using the R np package. With a variety of nonparametric kernel-based estimators for mixed-data types, the np package allows a multivariate regression analysis (Hayfield & Racine, 2008). Considering for a key factor of adult literacy in the relevant literature (UIL, 2016; OECD, 2013), the Kernel regression includes educational attainment of the adult population (25 years and older) from UNESCO Institute for Statistics Data. As consistently discovered in the sets of Kruskal–Wallis test, two variables of adult learning and education policy in the country level are closely associated with adult literate rate (see Table 4). Taken all together, national policy is related to adult literacy population rate measured by the international assessment data and political commitment might matter for adult literacy and learning.

<Table 5> Kernel Regression Significance Test

Explanatory variables	**P-value**
Educational attainment of the population(25 aged and older)	0.002**
National priority on literacy(Dummy: 1= yes)	0.030*
National progress on ALE policy(3- point scale)	0.030*

IV. Discussion

A measurement revolution has influenced global literacy assessment with an increasing demand for research-based policy and practice. The growing emphasis on scientific evidence about effective literacy policies has served to produce comparative data on literacy among multilateral organizations. As a result, various literacy assessment initiatives have stemmed from an emerging methodological understanding on literacy as a continuum scale in order to provide literacy policy-relevant information. This paper aims to unpack the international literacy assessment data proposed as a global indicator of the 2030 Agenda for Sustainable Development Goal 4.6.

The relevant literature review finds that international discourses among multilateral agencies have converged on the measure of literacy as a foundation skill during the last 15 years. A main objective of international literacy assessments is to inform policymakers of the distribution of key skills and their links with social and economic outcomes. For this, similar methodological approaches are adopted to measure progress in adult literacy using a probabilistic sampling method, a scale of progression, assessment design frameworks, and shared assessment items. In particular, literacy assessments have developed indicators of literacy proficiency based on Item Response Theory (IRT) which estimates the respondents' ability in each domain of literacy, on the basis of information about their observed performance in given tasks. Results from the direct literacy tests provide more reliable and valid estimates compared to a self-reported binary measure (literate or illiterate). Given that a main focus of the educational assessment is to inform how learning can improve literacy skills, evidence from the recent international assessment tools has been expected to offer an insight for improving teaching and learning in the world.

Using the further sophisticated data, literacy skills are assessed and monitored within a learning metric to ensure quality of education as a priority of the SDGs. In this vein, I link national policy of adult learning and education into analyzing differences in adult literacy. Two analytical strategies find a consistent result that national indicators of adult learning and education policy are closely associated with the adult literacy rate. From a more comprehensive view of the complex and context-specific nature of literacy, the

empirical results in this study suggest that adult needs to learn and improve their proficiency on the literacy to live well corresponding to increasingly changing societies, which also requires to assess the literate environment where adults continue to acquire and retain complex literacy skills (Benavot, 2015; Hanemann, 2015). For this, it should be widely admitted that literacy skills are not atomized entities but learned through a specific sociocultural context.

In sum, I advocate a particular attention to see literacy skill acquisition within a lifelong learning paradigm. In the existing literacy assessments, a major focus was given to the relationship between initial education attainment and basic skill acquisition but hardly any focus on lifelong learning was given. Different dimensions of learning experiences should be considered beyond initial formal schooling. Although PIAAC and STEP pertain the thematic section related to post-initial learning, it is more about "complementary learning" such as on-the-job training and continuing vocational or professional training out of formal schooling. An extensive scope for learning needs to operationalize lifelong learning occurring at more vibrant sociocultural contexts including non-formal and informal learning settings. In this sense, the other literacy assessment tool needs to be well-noted for monitoring adult literacy in addition to PIAAC and STEP. For example, Action Research: Measuring Literacy Programme Participants' Learning Outcomes (RAMAA) occupies a unique position in the field of measurement, monitoring, and evaluation of literacy program in non-formal education sector (UIS, 2016). With a particular aim to monitor a quality of adult literacy programme, RAMAA has contributed to including African regions in the field of literacy assessment (UIL, 2015).

The global imperative to attain the SDGs has taken on greater political importance for lifelong literacy, and literacy assessment initiatives should go ahead with trying to, "Think Globally, Act Locally and Collaborate Internationally." For this, the interlinkages and integrated nature of the SDGs should be crucial importance in ensuring that the purpose of the new literacy agenda (UIL, 2016). To accelerate progress towards the 2030 Agenda for SDGs, it is essential to establish the global alliance for the availability of high-quality and timely literacy data for all. This will make the current global literacy map turn out a complete picture for the sustainable world.

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